

Original Article

Knowledge, attitudes, and practices of pelvic floor muscle exercises among pregnant women visiting public hospitals

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Abstract

Many countries are focusing on antenatal programs and developing strategies to ensure the availability of basic needs to pregnant women and prevent complications concerning childbirth. During the antenatal period, pelvic floor muscle exercises (PFMEs) reduce complications during labor or puerperium, benefiting the mother and the child. Therefore, the current study was designed to identify the gaps in knowledge, attitudes, and practices of PFMEs among pregnant women. This descriptive cross-sectional study recruited 385 pregnant women using a purposive sampling technique aged 18 to 40 who visited major tertiary care public hospitals in their second and third trimesters. Face-to-face interviews were conducted using a semistructured questionnaire consisting of four sections: sociodemographics, knowledge, attitude, and practices. The overall knowledge of the pregnant women was determined using the modified Bloom's cutoff point. Descriptive statistics were calculated for the collected data. Pregnant women's education levels varied widely, ranging from no formal education to graduate. Most of them belonged to low socioeconomic status families (84.16%), i.e., below Pakistani rupees (PKR) 15,000. Nearly half of the pregnant women were familiar with PFMEs (51.69%). They had relatively better knowledge about PFMEs regarding preventing urine leaks (43.38%), reducing back pain (40.00%), preventing excessive weight gain (46.49%), preventing swelling of extremities (47.01%), and increasing energy and stamina during pregnancy (40.52%). Moreover, 50.39% of pregnant women believed childcare activities barred them from performing PFMEs. However, a meager number of pregnant women (6.75%) were performing PFMEs. The overall knowledge of PFMEs among most pregnant women was poor (64.16%). The study observed various deficiencies in PFME-related knowledge among pregnant women and some difficulties performing these exercises. Only a meager number of the recruited sample reported the regular practice of PFMEs, indicating a dire need to increase the awareness and adherence of women in the local community.

Keywords

Knowledge; Attitude; Practices; Pelvic floor muscles; Exercise; Pregnant women

1. Introduction

Currently, many countries are focusing on antenatal programs and developing strategies to ensure the availability of basic needs to pregnant women and prevent complications concerning childbirth [1]. During the antenatal period, physical therapy also has an important role. Generally, pregnant women visiting local hospitals are recommended to perform mild- to moderate-intensity exercises to strengthen the pelvic floor muscles. These exercises help reduce complications during labor or puerperium, benefiting the mother and the child [2, 3].

Pregnant women remain at high risk of injury and weakness of pelvic floor muscles during the antenatal period and labor. For this reason, they often experience pelvic floor dysfunction after delivery [4]. Pelvic floor disorders include urinary incontinence (UI) and dyspareunia, which may lead to temporary or permanent effects [5]. Enuresis is the other name for UI, defined as unpremeditated urine discharge, which is prevalent among 57.7% of females in low- and middle-income countries [6, 7]. It affects women's health and quality of life by restricting physical activities and eliciting employment-related issues, emotional disturbance, behavioral problems, travel limitations, sleep disorders, and hindered prayers [8].

At postpartum, well-built pelvic floor muscles may help to improve the act of holding urine and decrease the effect of UI [3]. The onset of UI during pregnancy is estimated to be highly prevalent, between 35% and 67%, among women during their antenatal period [3, 9]. It is evident from the literature that pregnant females who practice pelvic floor muscle exercises (PFMEs) are less likely to encounter postpartum UI [10]. Usually, women who do not practice perineal muscle exercises and suffer from UI during gravidity have a five times higher probability of UI in the postnatal period [11].

There is a disbalance between pregnant women's knowledge and their practice of PFMEs. Despite having good knowledge regarding PFMEs, only a meagre number of women perform these exercises regularly [12]. Moreover, a study in northeast Scotland found that books were the primary source of knowledge regarding PFMEs for most pregnant women, while most were acquiring additional instructions to perform them [13]. Every second Scottish pregnant woman requires training for the exercises during antenatal care. However, compliance with pelvic floor exercises may vary across nations depending on the level of knowledge and its perceived benefits [14]. Studies from developing countries such as Thailand, Malaysia, and Pakistan have reported that most pregnant women know about pelvic floor muscle training and consider it beneficial for their health [4, 15, 16, 17]. However, despite having good knowledge, Pakistani pregnant women have poor attitudes and practices regarding such exercises [16, 17].

In our society, there is a perception that UI is normal during pregnancy and postpartum. Therefore, mainly women do not practice PFMEs, considering that UI recovery is associated with time [18]. On the other hand, pregnant women assume that these exercises may lead to abortion [19]. Therefore, most pregnant females barely acquire proper knowledge about PFMEs, resulting in less usage of these exercises [20]. Furthermore, the other misconceptions regarding UI or pregnancy-related complications also barred them from learning more about them.

The gestation period is a suitable time for a woman to adopt a PFME routine and a way to maintain an active lifestyle [21, 22]. According to the American Congress of Obstetricians and Gynecologists (ACOG) and the National Institute for Health and Care Excellence guidelines (NICE), there are fewer hazards and more benefits in performing exercises during the antepartum period. However, in everyday life routines, few modifications are needed for nurturing and embryonal stipulations. The ACOG further states that daily exercise of minimal intensity may reduce the chances of gestational diabetes mellitus (GDM), improving psychological health and assisting in weight management [23, 24].

It is evident from the literature that by performing antenatal exercise training programs, many conditions, such as embryonic illness and fetal deaths, can be prevented, and the fatality rate of women can be reduced during pregnancy or at the time of delivery [25]. Furthermore, PFMEs are crucial when pregnant women make antenatal visits for screening and treatment, and timely counseling may prevent future complications [26, 27]. Therefore, this study aimed to assess the knowledge, attitude, and practices of PFMEs among pregnant women visiting public hospitals in Lahore.

2. Material and methods

2.1. Study design

This is a descriptive cross-sectional study.

2.2. Ethics approval

This study obtained ethical clearance from the Ethics Review Committee, Hussain Memorial Hospital, Lahore (No. HMH/RC/2022/06). The data were collected between June and September 2022.

2.3. Study setting

This study was conducted at two major public tertiary care hospitals in Lahore, i.e., Jinnah Hospital and Mayo Hospital, catering to the healthcare needs of the large number of patients visiting from all over the densely populated Punjab province.

2.4. Participant recruitment

This study recruited pregnant women aged 18 to 40 who visited public hospitals in their second and third trimesters and provided written informed consent. However, pregnant women with multiple and complicated pregnancies and a history of back and pelvic injuries were excluded from the study.

2.5. Sample size

The minimum sample size calculated was 385 using the Raosoft calculator by keeping a 5% margin of error, a 95% confidence interval, and a 67% response distribution [3, 9].

2.6. Sampling technique

The study participants were included in this study by using a nonprobability purposive sampling technique.

2.7. Study instrument development

The semistructured questionnaire was used as a data collection tool. The questionnaire was adopted from a previously conducted study and modified slightly before the final collection of data [3, 28].

2.8. Data collection

Data were collected by conducting face-to-face interviews, which lasted for ten minutes. The interview was conducted after obtaining written informed consent. The mode of communication comprised local languages, i.e., Urdu, Punjabi, etc.

2.9. Study measures

The study tool comprised four sections, including the sociodemographic section, which consisted of 7 questions, four open-ended questions, and three closed-ended questions. The following section assessed knowledge aspects consisting of 13 closed-ended questions, followed by the attitude and practices section comprising five closed-ended and two closed-ended questions. The overall knowledge of the pregnant women was classified using modified Bloom's cutoff point, i.e., good, moderate, and poor, with corre-

sponding scores ranging between 10 and 13 (80 – 100%), 7 and 9 (50 – 79%), and less than 7 (< 50%), respectively [29].

2.10. Statistical analysis

Descriptive statistics were calculated using frequencies, percentages, mean, standard deviation, minimum, and maximum. The data were analyzed using Statistical Package for Social Sciences (SPSS) (version 25.00).

3. Results

Table 1 shows that pregnant women had an average age of 27.68 ± 3.84 years with 6.19 ± 1.26 months of pregnancy. Moreover, pregnant women reported, on average, 34.03 ± 7.88 hours of workload per week. The level of education varied widely, ranging from no formal education to graduate. Table 1 further delineates that most pregnant women (84.16%) belonged to low socioeconomic status families, i.e., PKR < 15,000. Moreover, more participants resided in urban areas (80.26%) than in rural areas (19.74%).

Table 1. Sociodemographic and pregnancy-related information of study participants (n = 385)

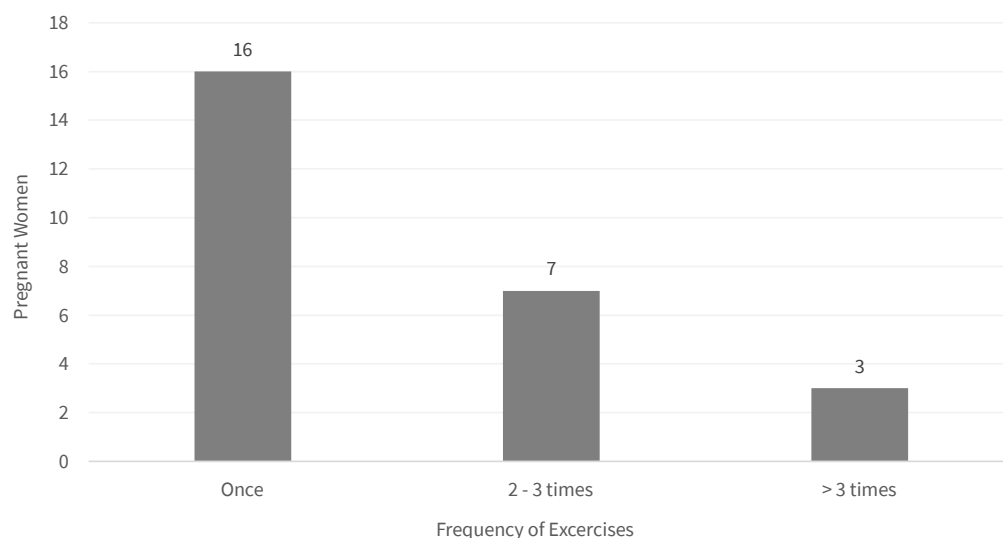
Description		N	%	Mean	SD	Min.	Max.
Age (in years)		-	-	27.68	3.84	18.00	38.00
Level of education	No formal education	47	12.20	-	-	-	-
	Primary	30	7.79	-	-	-	-
	Secondary	55	14.29	-	-	-	-
	Matriculation	98	25.45	-	-	-	-
	Intermediate	82	21.30	-	-	-	-
	Undergraduate	23	5.97	-	-	-	-
	Graduate	50	12.99	-	-	-	-
Monthly income (in PKR)	< 15,000	324	84.16	-	-	-	-
	15,000 – 25,000	35	9.09	-	-	-	-
	25,001 – 35,000	11	2.86	-	-	-	-
	35,001 – 45,000	9	2.34	-	-	-	-
	> 45,000	6	1.56	-	-	-	-
Geographical location	Urban	309	80.26	-	-	-	-
	Rural	76	19.74	-	-	-	-
Duration of work (in hours per week)		-	-	34.03	7.88	14.00	70.00
Hospital visited	Jinnah hospital	244	63.38	-	-	-	-
	Mayo hospital	141	36.62	-	-	-	-
Number of children		-	-	1.72	1.19	0.00	5.00
Duration of pregnancy (in months)		-	-	6.19	1.26	1.00	8.00

Table 2 shows that nearly half of the pregnant women were familiar with PFMEs (51.69%). Moreover, pregnant women had relatively better knowledge about PFMEs regarding preventing urine leaks (43.38%), reducing back pain (40.00%), preventing excessive weight gain (46.49%), preventing swelling of extremities (47.01%), and increasing energy and stamina during pregnancy (40.52%) than other items of the knowledge section. Table 2 further shows that 50.39% of pregnant women believed that childcare activities prevented them from performing PFMEs. In addition, a meagre number of pregnant women (6.75%) were performing PFMEs.

Figure 1 shows the frequency of PFMEs practiced by pregnant women. Of 26 pregnant women, 61.54% performed PFMEs once a day, followed by 2 to 3 times (26.92%) and more than three times (11.54%).

Table 2. Knowledge, attitude, and practices of PFMEs among pregnant women (n = 385)

	Description	N	%
Knowledge	Familiar with PFMEs	199	51.69
	Familiar with methods of performing PFMEs	71	18.44
	Prevents urine leak	167	43.38
	Prevents fecal incontinence	89	23.12
	Reduces the risk of urogenital prolapse	34	8.83
	Reduces back pain	154	40.00
	Prevents from gaining excessive weight	179	46.49
	Prevents swelling of extremities	181	47.01
	Increases energy and stamina during pregnancy	156	40.52
	Enhances the ability to cope with labor and delivery	133	34.55
	Relieves pain and pressure in pelvic floor muscles	136	35.32
	Reduces muscular spasm	105	27.27
	Improves bodily awareness regarding posture and balance	60	15.58
Attitude	Do you think you feel/will feel tired while performing exercises?	163	42.34
	Do you think you are/will be afraid of performing exercises?	187	48.57
	Do you think you have sufficient information regarding different exercises?	20	5.19
	Do you think you are too busy to take the time to perform PFMEs?	178	46.23
	Do you think you have many childcare activities barring you from PFMEs?	194	50.39
Practices	Practice PFMEs	26	6.75

**Figure 1.** Frequency of pregnant women performing PFMEs daily (n = 26).

Out of the 385 pregnant women surveyed, 247 (64.62%) had a poor level of knowledge regarding PFMEs, 74 (19.22%) had a good level of knowledge, and 64 (16.62%) had a moderate level of knowledge.

4. Discussion

Our study showed that pregnant women's education levels varied widely, ranging from no formal education to graduate, and most belonged to low socioeconomic status families. Moreover, more participants resided in urban areas than in rural areas. Nearly half of the pregnant women were familiar with PFMEs. Moreover, pregnant women had better knowledge of PFMEs, including preventing urine leaks, reducing back pain, pre-

venting weight gain, preventing swelling of extremities, and increasing energy and stamina during pregnancy. However, most pregnant women believed that childcare activities prevented them from performing PFMEs. In addition, a meager number of pregnant women were performing PFMEs, among which most were performing PFMEs once a day. Moreover, the overall knowledge of PFMEs among most pregnant women was poor.

Our study's results are consistent with a Thai study that determined pregnant women's knowledge, attitudes, and practices. Of the recruited sample, 55.5% knew about the importance of PFMEs [15]. Moreover, 27.9% of women accurately responded to knowledge-related questions; 98.4% knew about the exercise benefits that do not affect pregnancy outcomes. However, only 10.7% of women had irregularly performed these exercises [15]. Another study's results align with our results, which assessed PFME knowledge, attitudes, and practices among Malaysian pregnant women [30]. The study highlighted that nearly half of the pregnant women (52%) knew about PFMEs, and 58.9% of women had a positive attitude toward PFMEs. However, in contrast to our study results, most pregnant women (70%) were practicing PFMEs [30]. The results of the present study are also supported by another study performed in Malaysia that included 56 pregnant women attending a university hospital for antenatal care [5]. The study's results highlighted that 51.8% of respondents had good knowledge and 96.4% had a positive attitude, but only 10.7% exercised PFMEs daily or regularly.

The reason for limited knowledge may be attributed to the fact that healthcare providers may consider it unimportant to explain the importance of PFMEs to pregnant women during their antenatal visits to healthcare facilities [31]. In addition, the absence of educational programs specifically tailored for pregnant women emphasizing PFMEs may also be the reason for this limited knowledge [32]. Studies have suggested that educational programs for pregnant women underlining the knowledge and importance of PFMEs increase women's knowledge and improve their practices [33, 34]. It is evident from the Malaysian study, which was conducted with poor baseline knowledge of pregnant women regarding PFMEs and applied educational program interventions. After the intervention, significant knowledge was increased among pregnant women concerning PFMEs [33].

The lack of knowledge about pelvic floor disorders can also be a reason for poor knowledge of PFMEs among pregnant women, which may be due to the limited access of women to healthcare facilities, the embarrassment of discussing pelvic floor disorder symptoms with the healthcare provider, fear of social stigma, and peer pressure [19, 35, 36]. Furthermore, a lack of knowledge about the diverse symptoms of pelvic floor disorders keeps pregnant women asymptomatic, barring them from seeking medical care for such disorders and ultimately limiting their likelihood of understanding preventive and curative modalities [37, 38].

The results of our study regarding the practices of pregnant women performing PFMEs are inconsistent with the study, which highlighted that pregnant women had good knowledge, and half of those women were practicing PFMEs [7]. Another study reported similar results by recruiting 720 women during pregnancy and postpartum; approximately half of the pregnant women were performing these exercises during pregnancy, and most intended to perform them during the postpartum period [32].

Pelvic floor exercises are specialized and must be performed correctly to obtain the desired benefits. Unfortunately, a lack of confidence often prevents pregnant women from practicing PFMEs, reducing their exercise compliance [39]. In this regard, healthcare providers should properly train women regarding PFMEs so that they are confident in performing those exercises, and their compliance increases over time, as train-

ing programs have proven to be effective in improving PFME practice and better compliance with prescribed exercises [33, 40].

The present study targeted women's reproductive health. It provided baseline evidence for the key aspect of maternal health, which marks the study's strength. However, the study only focused on knowledge, attitude, and practices; hence, it did not explore the reasons that may affect any of the three critical dimensions mentioned above.

5. Conclusions

Our study observed various deficiencies in PFME-related knowledge among pregnant women and some difficulties performing these exercises. Last, only a meager number of the recruited sample reported the regular practice of PFMEs, indicating a dire need to increase the awareness and adherence of women in the local community.

Author contributions: Conceptualization, JS and LA; methodology, JS and LA; software, JS and LA; validation, JS and LA; formal analysis, JS; investigation, LA; resources, JS; data curation, JS and LA; writing—original draft preparation, JS and LA; writing—review and editing, JS and LA; visualization, JS and LA; project administration, JS and LA. Both authors have read and agreed to the published version of the manuscript.

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Ethics statement: This study obtained ethical clearance from the Ethics Review Committee, Hussain Memorial Hospital, Lahore (No. HMH/RC/2022/06).

Consent to participate: Informed consent was obtained from all participants included in the study.

Data availability: The data supporting this study's findings are available from the corresponding author, Laiba, upon reasonable request.

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Conflicts of interest: The authors declare no conflicts of interest.

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